



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,599	12/03/2001	Dmitry Ponomarenko	BKE-004	2470

21323 7590 03/23/2004

TESTA, HURWITZ & THIBEAULT, LLP
HIGH STREET TOWER
125 HIGH STREET
BOSTON, MA 02110

EXAMINER

LEE, PATRICK J

ART UNIT	PAPER NUMBER
----------	--------------

2878

DATE MAILED: 03/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/008,599

Applicant(s)

PONOMARENKO, DMITRY

Examiner

Patrick J. Lee

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-74 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 14 objected to because of the following informalities: In line 2 of claim 14, a space should be disposed between "characteristic" and "is". Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 6-14, 19-24, 36-45, 47-52, 55-60, & 67-68 are rejected under 35 U.S.C. 102(b) as being anticipated by Lipson et al 5,225,887.

With respect to claims 1, 19, 36, 39, & 45, Lipson et al disclose an optical interferometer system comprising two fibers (14, 15) as optical inlets, a fiber (16) as an optical outlet, and a coupler unit (22) as an optical junction where two beams are superimposed.

With respect to claims 2, 4-5, 10-12, 20, 22, 50-51, & 55-56, Lipson et al disclose optical detector units (36-37) positioned to detect at least one property of light.

With respect to claims 3, 21, 37, 40, 42-44, 52, 59, Lipson et al disclose the property of light to be the wavelength of light detected to correlate to the change of phase (see column 14, lines 7-10).

With respect to claims 6-7, 23-24, & 57-58, Lipson et al do not explicitly disclose that the zone of the interference pattern formed is a Fresnel zone, but it is inherent that a circular pattern is formed when two waves are superimposed.

With respect to claims 8-9 & 47-49, Lipson et al disclose wave sources (12, 13) as electro-optic converters coupled to the inlet fibers (14, 15).

With respect to claims 13-14 & 67-68, Lipson et al disclose a coupler unit (42) with fibers (33-35) and filters (41, 43) to serve as a light separator that divides light based on the wavelength.

With respect to claims 38, 41, & 60, Lipson et al disclose the amplitude of the waves as being a factor in the property of the outgoing beam (see column 13, lines 7-11).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 15-18, 30-35, & 69-78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lipson et al 5,225,887.

Lipson et al disclose the invention as described in the discussion of claims 1-14, 19-24, 36-45, 47-52, 55-60, & 67-68.

With respect to claims 15-18 & 69-73, Lipson et al do not explicitly disclose the light separation techniques as claimed. It is disclosed that filter elements (41, 43) can

be polarization sensitive (see column 14, lines 63-66). The use of dispersive materials, beam splitters, and birefringent materials are known and would have been obvious to modify the teachings of Lipson et al accordingly to improve the ability of the device to accurately separate and detect light components.

With respect to claims 30-33, Lipson et al disclose the use of delay element (180) in another embodiment to ensure that back-reflection does not occur in the system.

With respect to claims 34-35 & 74-78, Lipson et al do not disclose the incorporation of additional optical junctions to couple the optical outlet of one junction to an inlet of another junction, but such is known and would have been a mere matter of duplication of parts in order to form an optical network.

6. Claims 25-29, 53-54, & 61-66 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lipson et al 5,225,887 in view of Sanders et al 5,999,304.

With respect to claims 25-29, 53-54, & 61-66, Lipson et al describe the system as discussed. However, Lipson et al do not disclose the use of a phase shifter. However, such is known and disclosed by Sanders et al in a fiber optic device comprising phase modulator (19), light sensor (11), and photodetector (14). The incorporation of the phase shifter would allow for increase sensitivity of the device (see column 1, lines 59-column 2, line 15) and allow for increased control of light emitted by the wave sources.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Asawa et al 5,712,937 disclose an optical waveguide.

Rickman et al 6,163,632 disclose an integrated optical circuit.

Magne et al 6,639,681 B1 disclose an optical de-multiplexing device.


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Lee whose telephone number is (571) 272-2440. The examiner can normally be reached on Monday through Friday, 8:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick J. Lee
Examiner
Art Unit 2878

PJL
March 10th, 2004


DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800